


This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

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1. (Original) A power device, comprising:
a gate electrode, a source electrode, and a drain electrode provided within an active region of a semiconductor substrate of first conductivity type; and
a vertical diffusion region of second conductivity provided at a periphery the active region, the vertical diffusion region extending continuously from a top surface of the substrate to a bottom surface of the substrate, the vertical diffusion region including:
an upper portion having a first depth, and
a lower portion having a second depth that is substantially greater than the first depth.
 2. (Original) The power device of claim 1, wherein the power device is an IGBT device.
 3. (Original) The power device of claim 1, wherein the vertical frame is a scribe diffusion region.
 4. (Original) The power device of claim 1, wherein the upper portion primarily comprises of an impurity of first type and the lower portion comprises of an impurity of second type different from the impurity of first type.
 5. (Original) The power device of claim 4, wherein the impurity of first type has a first diffusion rate and the impurity of second type has a second diffusion rate, the second diffusion rate being greater than the first diffusion rate.
 6. (Original) The power device of claim 5, wherein the impurity of first type is boron.
 7. (Original) The power device of claim 6, wherein the impurity of second type is aluminum.

8. (Original) The power device of claim 1, wherein the first depth of the upper portion is less than about 70% of the second depth of the lower portion.
9. (Original) The power device of claim 8, wherein the first depth of the upper portion is about 50% of the second depth of the lower portion.
10. (Original) The power device of claim 1, wherein the vertical diffusion frame provides forward and reverse blocking capabilities.
11. (Original) A power device; comprising:
a gate region, a source region, and a drain region provided in an active region of a semiconductor substrate of first conductivity type, the substrate having a front side and a backside;
a scribe diffusion region of second conductivity type provided around the active region, the scribe diffusion region extending continuously from the front side of the substrate to the backside of the substrate, the scribe diffusion region comprising an impurity of first type and an impurity of second type different from the impurity of first type.
12. (Original) The power device of claim 11, the scribe diffusion region including a first portion adjacent to the front side of the substrate and a second portion adjacent to the backside of the substrate, the first portion primarily comprising the impurity of first type and the second portion primarily comprising the impurity of second type.
13. (Original) The power device of claim 11, wherein the scribe diffusion region provides the power device with substantially symmetrical forward and reverse blocking ratings.
14. (Original) The power device of claim 11, wherein the impurity of first type is boron and the impurity of second type is aluminum.
15. (Original) The power device of claim 11; further comprising:
a plurality of wells of second conductivity provided within the active region of the substrate, the plurality of wells having an impurity of third type.

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16. (Original) The power device of claim 15, wherein a diffusion rate of the impurity of second type is greater than that of the impurity of third type.

17. (Original) The power device of claim 11, wherein the substrate of first conductivity is an N type substrate, and the scribe diffusion region of second conductivity is a P type region.

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